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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/015,013	12/11/2001	Carroll Philip Gossett	PGOSS-004.US.P	2062

7590 01/20/2004

WAGNER, MURABITO & HAO LLP
Third Floor
Two North Market Street
San Jose, CA 95113

EXAMINER	
NGUYEN, DUNG X	
ART UNIT	PAPER NUMBER
2631	

DATE MAILED: 01/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/015,013	GOSSETT, CARROLL PHILIP	
	Examiner	Art Unit	
	Dung X Nguyen	2631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 October 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1, 2, 4 - 7, 10, 11, 13 - 21, and 23 - 30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *20, 21, 23 - 25, 27, 28, and 30* is/are allowed.

6)☒ Claim(s) *1, 2, 4 - 7, 10, 11, 13 - 19, 26 and 29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

Response to Arguments

1. Applicant's arguments filed on 20 October 2003 have been fully considered but are moot in view of the new ground(s) of rejection. Claims 3, 8, 9, 12, 22 have been cancelled. Claims 26 – 30 have been added.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> *(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.*

3. **Claims 1 – 2 are rejected** under 35 U.S.C. 103(a) as being unpatentable over Das (US patent # 6,640,209 B1).

Regarding claim 1, Das discloses a linear predictive coding (LPC) filter comprising linear predictive coefficients representing periodic signals within a specified band containing (column 2, lines 8 – 31 and column 6, lines 4 – 15) spread spectrum signal (column 7, lines 21 – 23) and wherein the LP coefficients are discarded (column 1, lines 14 – 25 and column 6, lines 36 - 39, the LPC in order to be adapted, the coefficient(s) must be discarded for reconstructing and re-synthesizing).

Das differs from the instant claimed invention that it does not show an antenna for receiving a spread spectrum signal. However, communication systems used to have an antenna for receiving input signal or to be very well known in the art (see Byrnes et al. in US patent #

5,940,791). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to recognize Das as having an antenna for receiving the input signal for completely detailing the communication system.

Regarding claim 2, Das further discloses that the filter is linear predictive coding (column 2, lines 8 – 15).

4. **Claim 11 is rejected** under 35 U.S.C. 103(a) as being unpatentable over Byrnes et al. (US patent # 6,256,609 B1).

Regarding claim 11, Byrnes et al. discloses a method of a linear predictive coding (LPC) filter for filtering periodic or quasi-periodic (column 1, lines 19 – 42) in a spread spectrum system (column 3, lines 41 – 55), wherein the LPC filter outputs error information (column 16, lines 62 – 65), of course, for signal processing purposes.

Byrnes et al. differs from the instant claimed invention that it does not show the LPC filter is used to remove periodic or quasi-periodic signals. However, one function of the filter is removing unwanted signal. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to implement Byrnes et al. to provide the LPC filter is used to remove instead of to pass periodic or quasi-periodic signals for processing the functions of the filter.

5. **Claim 29 are rejected** under 35 U.S.C. 103(a) as being unpatentable over Byrnes et al. (US patent # 5,940,791).).

Regarding claim 26, Byrnes et al. discloses (figure 5):

- An antenna for receiving a spread spectrum signal;
- A digital linear predictive coding (LPC) filter 3 (column 4, lines 30 – 32) having a lattice structure (abstract, line 2) coupled to the antenna, wherein the LPC filter is used to pass

periodic or quasi-periodic signals (column 1, lines 14 – 36) within the specified band (column 2, line 64) containing the spread spectrum signal.

Byrnes et al. differs from the instant claimed invention that it does not show the LPC filter is used to remove periodic or quasi-periodic signals. However, one function of the filter is removing unwanted signal. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to implement Byrnes et al. to provide the LPC filter is used to remove instead of to pass periodic or quasi-periodic signals for processing the functions of the filter.

6. **Claims 4 – 7, and 10 are rejected** under 35 U.S.C. 103(a) as being unpatentable over Das (US patent # 6,640,209 B1), further in view of Lee et al. (US patent # 5,822,360).

Regarding claim 4, Das differs from the instant claimed invention that it does not state that the specified band corresponds to IEEE 802.11(b). However, Lee discloses that its invention is used in direct sequence spread spectrum (column 9, lines 11 – 13), and IEEE 802.11(b) is a standard of DSSS environment (Harry Newton, "Newton's Telecom Dictionary", ISBN # 1-57820-069-5, Malt Kelsey published, page 17). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine Das and Lee et al. to modify the system of to comply with the standard as specified in IEEE 802.11(b) since Lee et al.'s system has been a DSSS communication system for improving the communication system.

Regarding claim 5, Das differs from the instant claimed invention that it does not state that the specified band correspond to Bluetooth. However, Lee et al. discloses that its invention is used in direct sequence spread spectrum (column 7, lines 21 – 23), and Bluetooth is a standard using frequency hoping spread spectrum technique (Harry Newton, "Newton's Telecom Dictionary", ISBN # 1-57820-069-5, Malt Kelsey published, pp. 96-97). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine and Lee et al. to modify to comply with the specified by Bluetooth thereby its specified band corresponding to the Bluetooth. Since both frequency hoping and direct sequence are specific forms of spread spectrum communication system. Using a frequency hoping instead of direct sequence is just an alternative way of communicating in the spread spectrum environment.

Regarding claim 6, Das and Lee et al. differ from the instant claimed invention that they do not mention that their inventions are using in CDMA receiver. However, CDMA system is a system to deal with coded signal in a spread spectrum system. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to use Das and Lee et al. in the CDMA system, because CDMA system is a subset of spread spectrum with coded system for increasing capacity thus translating into greater revenue.

Regarding claim 7, Lee et al. further discloses (figure 6) that the A/D converter (112) between input (11) and LPC filter (114).

Regarding claim 10, the linear predictive coding filter outputs a prediction error (column 11, lines 58 – 64 of Lee et al.) that is, of course, used for signal processing purposes.

7. **Claims 13 – 19 are rejected** under 35 U.S.C. 103(a) as being unpatentable over Byrnes et al. (US patent # 6,256,609 B1), further in view of Lee et al. (US patent # 5,822,360).

Regarding claim 13, Byrnes et al. differs from the instant claimed invention that it does not show its system comprising a direct sequence spread spectrum system. However, Lee et al. further discloses that its invention comprises a direct sequence spread spectrum system (column 9, lines11 – 13). Since the direct sequence is specific forms of spread spectrum communication system. Using a direct sequence is just an alternative way of communicating in the spread spectrum environment. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine Byrnes and Lee et al. to provide the system comprising a direct sequence spread spectrum system for processing the communication systems.

Regarding claim 14, Byrnes differs from the instant claimed invention that it does not state that its system comprises a frequency hoping spread spectrum system. However, Lee et al. discloses that its invention is used in direct sequence spread spectrum (column 7, lines 21 – 23), Therefore, it would have been obvious to one of ordinary skill in the art at the time of the

invention was made to combine Byrnes and Lee et al. to provide a system comprising a frequency hoping spread spectrum system. Since frequency hoping and direct sequence have been specific forms of spread spectrum communication system. Using a frequency hoping instead of direct sequence is just an alternative way of communicating in the spread spectrum environment.

Regarding claim 15, Lee et al. further discloses that the linear prediction coding (LPC) filter terms are discarded (column 11, lines 53 – 57).

Regarding claim 16, Byrnes differs from the instant claimed invention that it does not state that its system is used to filter out the periodic or quasi-periodic signals in compliance with IEEE 802.11(b). However, Lee discloses that its invention is used in direct sequence spread spectrum (column 9, lines 11 – 13), and IEEE 802.11(b) is a standard of DSSS environment (Harry Newton, "Newton's Telecom Dictionary", ISBN # 1-57820-069-5, Malt Kelsey published, page 17). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine Byrnes and Lee et al. to modify the system being used to filter out the periodic signals to comply with the standard as specified in IEEE 802.11(b) since Lee et al.'s system has been a DSSS communication system for improving the communication system.

Regarding claim 17, Byrnes differs from the instant claimed invention that it does not state that its system is used to filter out the periodic or quasi-periodic signals in compliance with Bluetooth. However, Lee et al. discloses that its invention is used in direct sequence spread spectrum (column 7, lines 21 – 23), and Bluetooth is a standard using frequency hoping spread spectrum technique (Harry Newton, "Newton's Telecom Dictionary", ISBN # 1-57820-069-5, Malt Kelsey published, pp. 96-97). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine Byrnes and Lee et al. to modify the system being used to filter out the periodic or quasi-periodic signals to comply with the specified by Bluetooth. Since both frequency hoping and direct sequence are specific forms of

spread spectrum communication system. Using a frequency hoping instead of direct sequence is just an alternative way of communicating in the spread spectrum environment.

Regarding claim 18 Byrnes et al. and Lee et al. differ from the instant claimed invention that they do not state that the digital filter is used to filter out unwanted signals in a standard modulated CDMA system. However, CDMA system is a system to deal with coded signal in a spread spectrum system. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to use Byrnes et al. and Lee et al. to filter out unwanted signals in the CDMA system, because CDMA system is a subset of spread spectrum with coded system (column 2, lines 46 – 64), for increasing capacity thus translating into greater revenue.

Regarding claim 19, Byrnes et al. and Lee et al. differ from the instant claimed invention that they do not state that the digital filter is used in a wireless peer-to-peer system. However, peer-to-peer system is a small network, one branch of communication system (Harry Newton, "Newton's Telecom Dictionary", ISBN # 1-57820-069-5, Malt Kelsey published, page 523). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to implement Byrnes et al. and Lee et al.'s digital filter into a wireless peer-to-peer system for security and reliability.

8. **Claim 29 are rejected** under 35 U.S.C. 103(a) as being unpatentable over Byrnes et al. (US patent # 5,940,791), further in view of Leber et al. (US patent # 6,611,600 B1).

Regarding claim 29, Byrnes et al. discloses (figure 5):

- A digital linear predictive coding (LPC) filter 3 (column 4, lines 30 – 32) for filtering periodic or quasi-periodic signals (column 1, lines 14 – 36) in a spread spectrum system (column 2, line 64), wherein the LPC filter comprises a gradient lattice structure (abstract, line 2 and column 10, lines 53 – 55).

Byrnes et al. differs from the instant claimed invention that it does not show the LPC filter for filtering out the periodic or quasi-periodic signals and comprising a gradient adaptive lattice structure. However, one function of the filter is removing unwanted signal. Therefore, it would

have been obvious to one of ordinary skill in the art at the time of the invention was made to implement Byrnes et al. to provide the LPC filter is used to remove instead of to pass periodic or quasi-periodic signals for processing the functions of the filter.

In addition, Leber et al. discloses the use of an adaptive filter (column 1, line 26) for modeling the feedback acoustic signal. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine Byrnes et al. and Leber et al. to provide a LPC filter comprising a gradient adaptive lattice structure n for modeling the acoustic signal.

Allowable Subject Matter

9. **Claims 20, 21, 23 - 25, 27, 28, and 30 are allowed.** The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 20, the prior art of record fails to show or render obvious of a method for filtering periodic or quasi-periodic signals in a spread spectrum signal, comprising the steps of:

Receiving the spread spectrum signal;

Digitizing the spread spectrum signal;

Determining linear predictive coefficients corresponding to the spread spectrum signal;

Discarding the linear predictive coefficients, wherein the linear predictive coefficients are not used to actively filter the spread spectrum signal;

Determining error coefficients corresponding to the spread spectrum signal;

Processing the error coefficients to retrieve information contained in the spread spectrum signal.

Regarding claim 27, the prior art of record fails to show or render obvious of a spread spectrum receiver, comprising:

An antenna for receiving the spread spectrum signal;

A digital filter coupled to the antenna, wherein the digital filter is used to remove periodic or quasi-periodic signals within specified band containing the spread spectrum signal and the digital filter outputs a first set of terms which correspond to the periodic signals and second set of terms which does not include the periodic signals;
An A/D converter, which converts the spread spectrum signal received by the antenna into a digital signal that is directly inputted into the digital filter.

Regarding claim 30, the prior art of record fails to show or render obvious of a method for filtering periodic or quasi-periodic signals in a spread spectrum signal, comprising the steps of:

Receiving the spread spectrum signal;

Digitizing the spread spectrum signal;

Using a linear predictive coding (LPC) filter to determine linear predictive coefficients and error coefficients corresponding to the spread spectrum signal;

Performing a gradient adaptive lattice method to determine the linear predictive coefficients and the error coefficients;

Discarding the linear predictive coefficients;

Using the error coefficients in signal processing.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Bossemeyer, Jr. (U.S. Patent # 6,249,760 B1) discloses an apparatus for gain adjustment during speech reference enrollment.

Eatwell (U.S. Patent # 6,249,760 B1) discloses an apparatus for noise reduction filter.

Contact Information

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dung X. Nguyen whose telephone number is (703) 305-4892. The examiner can normally be reached on Monday through Friday from 8:30 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Ghayour Mohammad H. can be reached on (703) 306-3034. The fax number for this group is (703) 872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.

DXN

November 6, 2003

M. GL

MOHAMMAD H. GHAYOUR
PRIMARY EXAMINER